minores directe, & ordinatim applicatæ ad idem punctum axis communis inverſe; & propterea (ob æqualitatem rationum directarum & inverſarum) in ratione æqualitatis.

Scholium.

Si ellipſis centro in infinitum abeunte vertatur in parabolam, corpus movebitur in hac parabola; & vis ad centrum infinite diſtans jam tendens evadet æquabilis. Hoc eſt theorema *Galilæi*. Et ſi coni ſectio parabolica (inclinatione plani ad conum ſectum mutata) vertatur in hyperbolam, movebitur corpus in hujus perimetro vi centripeta in centrifugam verſa. Et quemadmodum in circulo vel ellipſi ſi vires tendunt ad centrum figuræ in abſciſſa poſitum; hæ vires augendo vel diminuendo ordinatas in ratione quacunque data, vel etiam mutando angulum inclinationis ordinatarum ad abſciſſam, ſemper augentur vel diminuuntur in ratione diſtantiarum a centro, ſi modo tempora periodica maneant æqualia; ſic etiam in figuris univerſis ſi ordinatæ augeantur vel diminuantur in ratione quacunque data, vel angulus ordinationis utcunque mutetur, manente tempore periodico; vires ad centrum quodcunque in abſciſſa poſitum tendentes in ſingulis ordinatis augentur vel diminuuntur in ratione diſtantiarum a centro.

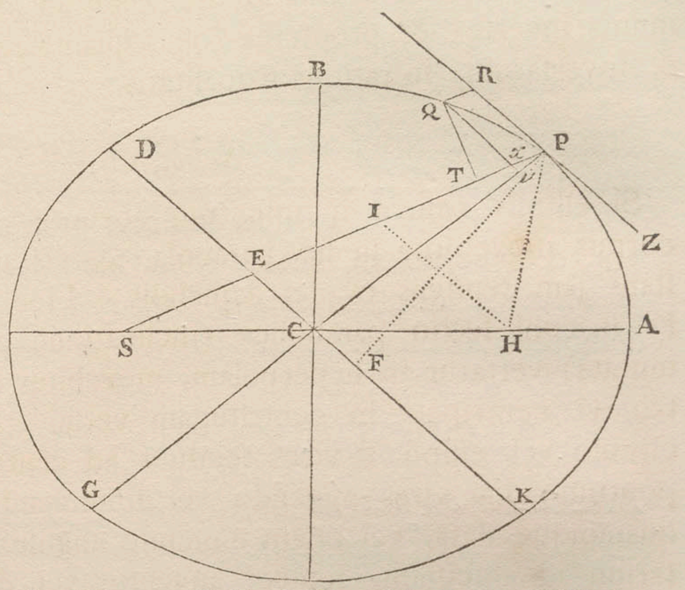
SECTIO III.

De motu corporum in conicis ſectionibus excentricis.

PROPOSITIO XI. PROBLEMA VI.

Revolvatur corpus in ellipſi: requiritur lex vis centripetæ tendentis ad umbilicum ellipſeos.

Eſto ellipſeos umbilicus S. Agatur SP ſecans ellipſeos tum diametrum DK in E, tum ordinatim applicatam Qv in x, & compleatur parallelogrammum $QxPR$. Patet EP æqualem eſſe ſemiaxi majori AC, eo quod, acta ab altero ellipſeos umbilico H linea HI ipſi EC parallela, ob æquales CS, CH æquentur ES, EI, adeo



adeo ut EP ſemiſumma ſit ipſarum PS, PI, id eſt (ob parallelas HI, PR, & angulos æquales IPR, HPZ) ipſarum PS, PH, quæ conjunctim axem totum $2AC$ adæquant. Ad SP demittatur perpendicularis QT, & ellipſeos latere recto principali (ſeu $\frac{2BC\,quad.}{AC}$) dicto L, erit $L \times QR$ ad $L \times Pv$ ut QR ad Pv, id eſt, ut PE ſeu AC ad PC; & $L \times Pv$ ad GvP ut L ad Gv; & GvP ad Qv *quad.* ut PC *quad.* ad CD *quad.* & (per corol. 2. lem. VII.) Qv *quad.* ad Qx *quad.* punctis Q & P coeuntibus eſt ratio æqualitatis; & Qx *quad.* ſeu Qv *quad.* eſt ad QT *quad.* ut EP *quad.* ad PF *quad.* id eſt, ut CA *quad.* ad PF *quad.* ſive (per lem. XII.) ut CD *quad.* ad CB *quad.* Et conjunctis his omnibus rationibus, $L \times QR$ fit ad QT *quad.* ut $AC \times L \times PCq \times CDq$, ſeu $2CBq \times PCq \times CDq$ ad $PC \times Gv \times CDq \times CBq$, ſive ut $2PC$ ad Gv. Sed punctis Q & P coeuntibus æquantur $2PC$ & Gv. Ergo & his proportionalia $L \times QR$ & QT *quad.* æquantur. Ducantur hæc æqualia in $\frac{SPq}{QR}$, & fiet $L \times SPq$ æquale $\frac{SPq \times QTq}{QR}$. Ergo (per corol. 1. & 5. prop. VI.) vis centripeta reciproce eſt ut $L \times SPq$, id eſt, reciproce in ratione duplicata diſtantiæ SP. $Q.E.I.$

Idem aliter.

Cum vis ad centrum ellipſeos tendens, qua corpus P in ellipſi illa revolvi poteſt, ſit (per corol. 1. prop. X.) ut CP diſtantia corporis ab ellipſeos centro C; ducatur CE parallela ellipſeos tangenti PR